

Glossary of Terms

A –

- ▶ **ASCII** - American Standard Code for Information Interchange is a standard for assigning numerical values to the set of letters in the Roman alphabet and typographic characters.
- ▶ **Attribute** - A field, column, or attribute within a data table. In the SDSFIE, these are associated with either graphic tables (Feature Classes), or non-graphic tables (Object Classes).

B -

C -

- ▶ **CADD** - Computer-Aided Design and Drafting. CADD systems use a wide range of computer-based tools that assist engineers, architects and other design professionals in their design activities.
- ▶ **Candidate** - Candidates are those elements which have been selected to be added to a database. Candidates may be added one at a time or based on combinations of either entity sets, entity classes, or filters.
- ▶ **Constant** - Values that do not change.
- ▶ **Constraints** - Restricting or confining values within prescribed bounds to ensure data quality and integrity (e.g. unique or foreign key).
- ▶ **Correlation Matrix** - a matrix giving the correlations between all pairs of data sets. Used to correlate existing source data (project data) with the SDSFIE features and attributes.

D -

- ▶ **Data Type** - The type of information stored in an attribute or field, along with the rules which determine how it is stored in a database.
 - ▶ **Domain** - The individual values which are permissible for a given attribute.
 - ▶ **Domain Table** - A table in the SDSFIE that contains a list of permissible values for a given attribute or field.
-

E -

- ▶ **Element** - A component or constituent of the whole feature.
- ▶ **Entity** - The individual graphic elements which are stored to represent a geospatial object. These are assigned depending on the object type of the parent Entity Type (G/GT Polygon, Point, or String/Chain) and are described as Boundary, Centroid, Label, Text, Point, and Line object types.
- ▶ **Entity Class** - The logical grouping of geographical features or entities within a given class. In some applications, this grouping corresponds to the design file or drawing file which contains the entities. The names of the Entity Classes are chosen to logically group the entities. In the Intergraph MGE GIS this grouping corresponds to categories and maps (design files). For the ARC/INFO application, it corresponds to a workspace. In AM/FM systems using MicroStation and AutoCAD applications the Entity Class corresponds to a design file or drawing file.
- ▶ **Entity Set** - The name of a generalized thematic group, the highest level of graphic and non-graphic data hierarchy represents data organized at project level. Entities are generally assigned to Entity Sets based on data maintenance responsibility to allow users to focus on smaller elements within the standard. Each of the Entity Sets defined in this release are identical to the ones in Release 1.800. Each Entity Set is reflected by encoding a two character representation in design file names and table names to more easily interpret the Entity Set. The Entity Sets with their corresponding two character representation can be reviewed and/or printed from the Interactive Spatial Data Standards Application. EXAMPLE: TRANSPORTATION is always represented by TR.
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- ▶ **Entity Type** - The logical name of an object that can be graphically depicted on maps or overlays. Entity Types reflect like cartographic features. These Entity Types represent a collection of Entities which point to a single table. The determination of the specific Entity is a function of one or more attribute values within that table. The Entity Type data element corresponds to the ARC/INFO coverage. In CADD systems, these types are further delineated into individual Entities, which are then assigned to separate levels/layers. Entity Types in MGE

are grouped by features. For AM/FM applications using MicroStation and AutoCAD, they are grouped by levels and layers, respectively.

- ▶ **ESRI** - Environmental Systems Research Institute, Headquartered in Redlands, California. ESRI provides Geographic Information System (GIS) software, products, and services.
- ▶ **Expressions** - A sequence of operands and operators constructed according to the syntactic rules of a symbolic language that evaluates to a single number, string, Boolean, or other value.

F -

- ▶ **Feature** - A thematic representation of an object in the real world. Unlike Entity Types, Features specifically define the form of the object in question. Many Features may use the same table. Thus the Features are determined on the basis of a Feature Alias and a Modifying characteristic. The Feature is always defined as being an Entity entry and is graphically represented as either a point, line, or polygon. Within the SDSFIE, Features do not have separate definitions, but rather are defined as the combination of the Entity Type Definition and the Discriminator Definition.

- ▶ **Feature Class** - An ESRI term referring to a table that contains a graphic element, along with its attributes or fields.

- ▶ **Feature Datasets** - An ESRI term referring to a container for Feature Classes that have an association, share topology, or are used in geometric networks.

- ▶ **FGDC** - Federal Geographic Data Committee. The FGDC was established through the U.S. Office of Management and Budget (OMB) Circular A-16 and charged with the responsibility to coordinate various surveying, mapping, and spatial data activities of Federal agencies to meet the needs of the United States. Major objectives of Circular A-16 are to avoid duplication and minimize costs in mapping and spatial data activities, which involves establishing standards and providing wider access to geospatial data. The FGDC also has been charged with coordinating geospatial data related activities with other levels of government and other sectors.

- ▶ **FID** - An attribute in a table that is reserved for use by an internal ESRI ID.

- ▶ **Field** - Another term for attribute.

- ▶ **Filter** - A subset of the Features included in the SDSFIE which may cross Entity Sets and/or Entity Classes. The Filter is defined at all levels including

Sets, Classes, Types, Entities, Features, Tables, Domains, and Joins.

- ▶ **FIPS** - Federal Information Processing Standard. The U.S. National Institute of Standards and Technology (NIST) is responsible for developing standards, guidelines, and associated methods and techniques for computer systems, including those needed to assure the cost-effective security and privacy of sensitive information in U.S. Federal computer systems. NIST adopts and publicizes U.S. FIPS standards under the provisions of Section 111(d) of the U.S. Federal Property and Administrative Services Act of 1949 as amended by the Computer Security Act of 1987.

- ▶ **Foreign Key** - A field in a table which links it to another related table (Customer ID might link a customer with the customer's invoice). More accurately, if field X is the primary key of table A and also appears in table B, it is a foreign key in table B.

G -

- ▶ **Geodatabase** - A new object-oriented geographic data model developed by ESRI that serves as a container for spatial and attribute data.

- ▶ **Geometry Type** - Point, String/Chain, G/GT Polygon, or Point/Polygon.

- ▶ **GIS** - Geographic Information System. A system, usually computer based, for the input, storage, retrieval, analysis and display of interpreted geographic data. The data base is typically composed of map-like spatial representations, often called coverages or layers.

- ▶ **GPS** - Global Positioning System. The GPS is a worldwide satellite navigation system that is funded and supervised by the U.S. Department of Defense. GPS satellites transmit specially coded signals. These signals are processed by a GPS receiver that computes extremely accurate measurements, including 3-dimensional position, velocity, and time on a continuous basis.

H -

I -

- ▶ **IDEF** - A Data Modeling methodology and notation used by the SDSFIE to organize the data stored in the associated data tables. This relational organization is determined by the IDEF Models. The models were created using LogicWork ERWin/ERX Data Modeling Software and is displayed using the Adobe Acrobat Reader. The Models themselves are available from the SDSFIE Web Site. (tsc.wes.army.mil)

▶ **INDEX**- To facilitate rapid retrieval of data, all RDBMS provide some facility for building indices on tables. Different indices can be built for each field, or an index can be built on some combination of fields. The sort algorithms used for the index will almost always be variants on B-tree and heap sort.

J -

▶ **Join Relations** - Join Relations define the specific relationships between Attribute Tables within the SDS. Attributes which serve as the link in these relationships are known as keys. The relationship is defined on the basis of the Table/Attribute combination in one table being related to the Table/Attribute combination in another. Normally, one of the keys is an identifier for that table. In this case, the key is a Primary Key. In this situation, the relationship is sometimes referred to as a Parent Child relationship.

K -

▶ **Keywords** - Certain SQL words/functions which perform special database operations.

L -

▶ **Library** - The SDSFIE Structure Files (TSSDSLIB, TSSDSDOM, TSSDSFET, etc)

▶ **Limits** - Refer to the maximum number of pages printed or the maximum number of lines generated on the screen.

▶ **List Domains** - The set of individual values which are permissible for a given attribute. List Domains represent discrete values rather than a numeric range. The values are normally character strings and in the SDS, these values are 16 characters or less. Within the List Domains table, each value also contains a definition which further amplifies the information about the value.

M -

▶ **Metadata** - Detailed information about data. This may include background information, contacts, date and points of origin, costs, access rights, format, purpose, etc.

N -

- ▶ **NAD27** - North American Datum of 1927. NAD27 is defined with an initial point at Meads Ranch, Kansas, and by the parameters of the Clarke 1866 ellipsoid. The location of features on USGS topographic maps, including the definition of 7.5-minute quadrangle corners, are referenced to the NAD27.

- ▶ **NAD83** - North American Datum of 1983. NAD83 is an Earth-centered datum and uses the Geodetic Reference System 1980 (GRS 80) ellipsoid, unlike NAD27, which is based on an initial point (Meades Ranch, Kansas). Using recent measurements with modern geodetic, gravimetric, astrodynamic, and astronomic instruments, the GRS 80 ellipsoid has been defined as a best fit to the worldwide geoid. Because the NAD83 surface deviates from the NAD27 surface, the position of a point based on the two reference datums will be different.

- ▶ **NSDI** - National Spatial Data Infrastructure. Executive Order 12906, "Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure," was signed on April 11, 1994, by President William Clinton. Under this order, each Federal agency is to document all new geospatial data it collects or produces, either directly or indirectly, using the standard developed by the Federal Geographic Data Committee (FGDC) and make that documentation electronically accessible to the Clearinghouse network.

O -

- ▶ **Object Class** - A logical classification of objects (e.g. buildings, roads, etc). Classes may contain sub-classes, or may be sub-classes of other classes (e.g. motorways are a sub-class of roads, which are a sub-class of transport systems).

- ▶ **ODBC** - Open Database Connectivity. An ODBC is a C programming language interface that makes it possible for applications to access data from a variety of database management systems (DBMSs). The ODBC interface permits maximum interoperability — an application can access data in diverse DBMSs through a single interface.

- ▶ **Output Path** - The default windows path used for output of information produced by the SDSFIE tool.

P -

- ▶ **PDF** - Portable Document Format -- The file format of the IDEF Models used in the SDSFIE Application. These files may be displayed using the Adobe Acrobat Reader. These PDF Files are also available from the SDSFIE Web

Site.(www.sdsfie.org).

- ▶ **Precision** - Refers to the number of significant digits used to store coordinate values. Precision is important for accurate feature representation, analysis, and mapping.

- ▶ **Primary Key** - A file accompanying a PNG that contains spatial reference information.

- ▶ **Projection** - Orderly system of lines on a plane representing a corresponding system of imaginary lines on an adopted terrestrial or celestial datum surface. Also, the mathematical concept of such a system. For maps of the Earth, a projection consists of (1) a graticule of lines representing parallels of latitude and meridians of longitude or (2) a grid.

Q -

- ▶ **Query** - A mechanism for retrieving one or more records from a table or tables in a database.

R -

- ▶ **Range Domains** - Range Domains are the numeric constraints placed on the value of numeric attributes. While most Range Domains contain both a maximum and minimum value, it is possible that a range may only have one or the other. As an example, the set of positive numbers may have a minimum value of 0.

- ▶ **RDBMS** - Relational Database Management Systems. A software package which manages a relational database, optimized for rapid and flexible retrieval of data; also called a database engine.

- ▶ **Record** - A group of related fields, or a single field, treated as a unit and comprising part of a file or data set, for purposes of input, processing, output, or storage in a geodatabase or Access database.

- ▶ **Referential Integrity** - Specifies that a Foreign Key contains a valid Primary Key reference.

- ▶ **Relational Join** - The relating of two or more tables in a relational database on the basis of a common item or field. Rows from these tables are compared, and based upon certain specified criteria, rows may be retrieved, updated or deleted from the database.

- ▶ **Relationship** - The linkage between database tables - requires a unique identifier.
- ▶ **Relationship Class** - An item in the geodatabase that stores information about a relationship. A relationship class is visible as an item in the ArcCatalog tree or contents view.
- ▶ **Release** - A version of the SDS; e.g. 1.80, 1.90, 1.95, 2.1, 2.20, 2.30, 2.40, 2.41, 2.50, etc
- ▶ **Rollback** - Returning the database to its original state following commencement, without commitment (Locks are cleared) and the transaction discarded).

S -

- ▶ **Schema** - The design for a relational database, including the complete definition of tables and the relationships between them.
- ▶ **SDE** - Spatial Database Engine. SDE is a high performance, object-based spatial data access engine implemented in several commercial relational database management systems (RDBMSs) using open standards and true client/server architecture.
- ▶ **SDSFIE** - Spatial Data Standards for Facilities, Infrastructure, and Environment. Large scale, high resolution standards.
- ▶ **SDSFIE Data Types** - C - equivalent of TEXT or VARCHAR containing general character values (length must be specified) (also used for Boolean) (N BYTES); I - signed numeric data type equivalent to INTEGER containing integer values up to 2,147,483,647 (also used for DATES/TIMES) (4 BYTES); S - signed numeric data type equivalent to SMALLINT or SHORT INTEGER containing integer values up to 32,767 (2 BYTES); R - signed floating point numeric data type containing almost any number with 9 significant digits and an E > 38 (4 BYTES); D - signed numeric data type containing almost any number with 15 significant digits and an E > 300 (8 BYTES); M – unstructured character data of nearly unlimited length (n BYTES) limited to one attribute of this type per table.
- ▶ **SDSFIE Key Types** - GRAPHIC KEY - contains the GIS Software Application key to ensure a link with the appropriate design file; PRIMARY KEY - contains a user defined unique identifier for the record within the table. Since the GRAPHIC KEY is, in most cases, system assigned, the Primary Key can be used for retrieving data with a more user friendly key; FOREIGN KEY - contains the same value as the Primary Key of the table where the record is linked. This

value to value correspondence establishes the actual “Join”; ALTERNATE KEY - contains a Foreign Key link to an external database table.

- ▶ **SDTS** - Spatial Data Transfer Standard. The SDTS was approved in July 1992 as Federal Information Processing Standard (FIPS) 173. The Standard allows the exchange of digital spatial data between different computer systems. It provides a solution to the problem of spatial data transfer from the conceptual level to the details of physical file encoding. Transfer of spatial data involves modeling spatial data concepts, data structures, and logical physical file structures. This Federal Geographic Data Committee Standard defines the transfer file formats for various elements within the spatial data community.

- ▶ **SI** - Supporting Infrastructure. SDSFIE Tables that contain related non-graphic information and/or facility management elements.

- ▶ **Spatial Reference** - The coordinate system used to store a spatial dataset. For feature classes and feature datasets within a geodatabase, the spatial reference also includes the spatial domain.

- ▶ **SQL** - Structured Query Language. SQL is an ANSI standard language designed to construct database queries and manipulate data help within relational databases. It was developed by IBM. for manipulation of relational databases.

- ▶ **Subtype** - A differentiation of a feature. In the SDSFIE, these are known as discriminating attributes, or discriminators. The symbology of the Feature displayed on the map changes based on the Subtype.

T -

- ▶ **Table** - A relational database table with attributes describing individual graphic Entities and other data relationships required for geospatial and relational analysis and maintenance. The Attribute Table name is composed of eight characters. The first two letters, and next three letters in the table name, reference the parent Entity Set, and Entity Class, respectively. The last three characters in the table name represent the table subject matter.

- ▶ **Table Code** - The short table name associated with the Feature Class.

- ▶ **Thematic Layers** - Layers depicting information relating to one or more specific themes, i.e.; soil type, population density, or rainfall.

- ▶ **Tool Tips** - Hints which appear when the cursor is held over an object on the screen.

U -

▶ **UTM** - Universal Transverse Mercator Projection. UTM is a widely used map projection that employs a series of identical projections around the world in the mid-latitude areas, each spanning six degrees of longitude and oriented to a meridian. This projection is characterized by its conformality; that is, it preserves angular relationships and scale plus it easily allows a rectangular grid to be superimposed on it. Many worldwide topographic and planimetric maps at scales ranging between 1:24,000 and 1:250,000 use this projection.

V -

W -

X -

▶ **XML** - Extensible Markup Language. This language is the universal format for structured documents and data on the web.

Y -

Z -